

REMARKS

Claims 1-61 were pending of which claims 32-61 were withdrawn and claims 1-31 were rejected. Claims 2, 7, 8, 17-18, and 29-31 have been amended, claim 62 has been added, and claims 9 and 32-61 have been cancelled. Claims 17 and 18 have been amended to correct their dependencies. No new matter has been added in the claims.

Election/Restrictions

Applicants hereby elect Claims 1-31. Claims 32-61 have been cancelled.

Claim Rejections – 35 U.S.C. §102

Claims 1-14, 19, 20, 22, 23, and 25-30 were rejected under 35 U.S.C. §102(b) as being anticipated by Rao (US 2002/0025547) (“Rao”). Reconsideration is requested.

Independent claim 1 recites “each well being defined by at least one surface that defines a cavity having an opening, wherein each well comprises: at least one aperture through the at least one surface of the well, the aperture configured to provide a gas supply access to the interior of the well.” Independent claim 19 recites “each well having at least one surface that defines an opening at a top of the well, wherein each well comprises: a first aperture through the at least one surface of the well, the first aperture configured to provide a gas supply access to the interior of the well”.

Thus, claims 1 and 19 explicitly recite that the at least one surface defines an “opening” and that there is an “aperture through the at least one surface”. Thus, the “opening” and the “aperture through the at least one surface of the well” are two separate elements in the claims, i.e., the “aperture” is not the same as the “opening”. Moreover, the “aperture through the at least one surface” is “configured to provide a gas supply access to the interior of the well”. Rao, on the other hand, shows, e.g., in Figs. 1, 2, and 8 that the air or gas is supplied to the interior of the well through the top opening in the well. Rao does not disclose an aperture in the at least one surface of the well that is configured to provide a gas supply to the interior of the well and that is distinct from the opening of the well.

Applicant notes that the Examiner addressed the location of the aperture on the bottom surface of the well in the rejection of claim 21 citing Rao in view of Olivier (2003/0219360) (“Olivier”), stating that “the drain at the bottom of each well would allow fluid in the well to

escape and drain into a collection plate.” Applicant respectfully submits that the combination of Rao and Olivier does not teach that the aperture that is on the bottom surface of the well is “configured to provide a gas supply access to the interior of the well” as recited in claim 1.

As recognized by the Examiner, Olivier discloses that the aperture is a drain for fluids in the well. Olivier states at paragraph [0025] that “each well has a drain 33 formed in the bottom of the well, preferably centrally located therein. The drain allows fluid (usually filtrate) in the well to escape and potentially be collected such as by a collection plate.” A drain to allow fluids in a well to escape is not an “aperture configured to provide a gas supply access to the interior of the well”. Thus, neither Olivier nor Rao teach or suggest providing a gas supply access to the interior of the well through an aperture through a surface of the well. Accordingly, even when combined, Rao and Olivier do not teach all the limitations of claim 1.

Applicant respectfully submits that claims 1 and 19 are patentable over Rao. Reconsideration and withdrawal of this rejection is respectfully requested. Applicant further submits that claims 1 and 19 are patentable over a combination of Rao in view of Olivier. Claims 2-8, 10-14, and 62 depend from claim 1 and claims 20, 22, 23, and 25-30 depend from claim 19 and are, therefore, likewise patentable.

Dependent claim 2 has been amended to recite that the “wherein each well is defined by a bottom surface and at least one side surface that defines the opening, the at least one aperture is through the bottom surface.” Dependent claim 8 also has been amended to recite that “the at least one aperture is through the bottom surface.” Dependent claim 21 recites “wherein the first aperture and the at least one additional aperture are through a bottom surface of each well.” New claim 62 also recites “wherein each well has a bottom and the at least one aperture is through the bottom.”

As discussed above, Rao does not teach or suggest providing a gas supply access to the interior of the well through an aperture through any surface of the well, much less through an aperture through the bottom surface of the well. Moreover, as also discussed above, Olivier does not teach or suggest an aperture for the gas supply in the bottom surface.

Accordingly, Applicant respectfully submits that dependent claims 2 and 21 are patentable over Rao for at least these additional reasons. Reconsideration and withdrawal of this rejection is respectfully requested.

Dependent claim 7 has been amended to recite “at least one membrane covering the at least one aperture, wherein the membrane is formed from a gas permeable material and the gas is supplied through the membrane.” Claim 29 has been similarly amended to recite at least one membrane “covering at least the first aperture, wherein the membrane is formed from a gas permeable material and the gas is supplied through the membrane.” Support for these amendments may be found, e.g., in claim 9, which is now cancelled and at, e.g., Fig. 4, paragraphs [0050] and [0052] of the present application. Claims 30 and 31 have been amended to depend from claim 29. Applicant submits that no new matter has been added.

Rao does not teach or suggest a gas permeable membrane that covers an aperture in a surface of the well that is used to provide a gas supply to the interior of the well as claimed in claims 7 and 29. In the rejection of claim 7, the Examiner cited to paragraph [0097], which discusses attaching “the chemical sensor ... to the bioreactor wall using....” Attaching a “chemical sensor” as discussed in paragraph [0097] of Rao is not related to providing the gas supply to the interior of the well through a gas permeable membrane.

In the rejection of claim 9, the Examiner cited to paragraph [0057], which discusses the use of a membrane filter, such as an ACRO 50 0.2 μ m PTFE filter, to filter the “manifold inlet air supply”. Paragraph [0057] refers to Fig. 8, which is reproduced below.

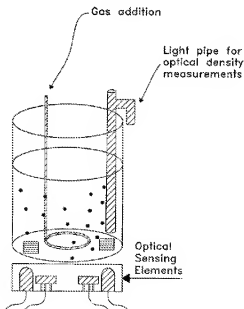


FIG. 8

As can be seen in Fig. 8, Rao does not teach or suggest that the disclosed filter covers an aperture in a surface of the well that is used to provide a gas supply to the interior of the well.

Additionally, Applicant notes that Rao discusses air delivery to the bioreactor of Fig. 2 at paragraph [0127]. Rao teaches that:

The cap had an inlet for air delivery and outlet for exhaust air. The inlet and outlet were positioned at the corners of the cuvette to avoid overlapping with the optical path for OD measurements. The inlet was connected to an air sparger, as indicated in FIG. 2, which was fabricated from a 100 µl plastic pipette tip. Three tubes with inner diameters of 0.25 mm were positioned at the end of the tip. The tubes were glued using epoxy resin. The outlet consisted of a short piece of a 16-gauge syringe needle. The air was supplied by an aquarium pump, passed through a regulator for low gas flow rate and filtered using a syringe filter (Millex®-GV, 0.22 µm, Millipore, Bedford, Mass.).

As can be seen, there is no disclosure of the use of a gas permeable membrane that covers an aperture in a surface of the well that is used to provide a gas supply to the interior of the well as claimed in claims 7 and 29.

Thus, the gas addition of Rao is not provided through “an aperture configured to provide a gas supply access to the interior of the well” where there is at least one membrane “covering the at least one aperture, wherein the membrane is formed from a gas permeable material and the gas is supplied through the membrane” as recited in claims 7 and 29.

Accordingly, Applicant respectfully submits that dependent claims 7 and 29 are patentable over Rao for at least these additional reasons. Reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. §103

Claims 15-17, 21, 24, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rao in view of Olivier (2003/0219360) (“Olivier”). Reconsideration is requested.

Olivier fails to make up for the deficiencies of Rao. As discussed above in reference to claims 1 and 19, Olivier discloses at paragraph [0025] that “each well has a drain 33 formed in the bottom of the well, preferably centrally located therein. The drain allows fluid (usually filtrate) in the well to escape and potentially be collected such as by a collection plate.” Olivier does not disclose an aperture in a surface of the well that is “configured to provide a gas supply access to the interior of the well”. Moreover, Olivier’s drain does not provide a rationale basis to modify Rao to configure an aperture in a surface of the well for a

gas supply. Accordingly, even when combined, Rao and Olivier do not teach all the limitations of claims 1 and 19.

Claims 15-17 depend from claim 1 and Claims 24, and 31 depend from claim 19, discussed above. Accordingly, claims 15-17 and claims 24, and 31 are patentable over the combination of Rao and Olivier for at least the same reasons that claims 1 and 19 are patentable. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 2, 7, 8, 17-18, and 29-31 have been amended, claim 62 has been added, and claims 9 and 32-61 have been cancelled, leaving claims 1-8, 10-32, and 62 pending. For the above reasons, Applicants respectfully request allowance of all pending claims. Should the Examiner have any questions concerning this response, the Examiner is invited to call the undersigned at (408) 378-7777, ext. 112.

Respectfully submitted,



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